experimental science, Hull entered Dublin University as a student of engineering, and the lectures of Thomas Oldham determined his career. Oldham recommended him to De la Beche, and he was appointed to the English Geological Survey as assistant to J. Beete Jukes.

These names serve to link Hull with the pioneers of British stratigraphy, and it was Murchison who nominated him in 1869 to succeed Jukes as director of the Geological Survey of Ireland. In his "Reminiscences of a Strenuous Life" (1910), reviewed in Nature, vol. lxxxiii., p. 395, interesting details are given of scientific life in Dublin when he entered on his new duties. In the same year he became professor of geology in the Royal College of Science for Ireland.

The series of sheets of the one-inch geological map of Ireland, already well advanced by Jukes for the southern area, was pushed forward by Hull with such prevision that the first issue was completed by the date of his retirement in 1890. Some of the revisions made in Jukes's work may be regarded as unfortunate; but the northern sheets, with their admirable choice of colouring, remain as a monument to Hull's powers of organisation. He was probably the first to utilise the petrological microscope as an aid to research in an official survey ("Memoir to Sheet 48," Ireland, 1872), and thus laid the foundation for much memorable work.

Hull's first published paper was on the Cotswold Hills in 1855, and was succeeded by more than 150 others. Much of his time on the survey of England and of Scotland was spent on Carboniferous areas, and his book on "The Coalfields of Great Britain" reached a fifth edition in 1905. He was a member of the Royal Commissions on Coal Supplies in 1871 and 1901. As the result of a journey on behalf of the Palestine Exploration Fund, he published a narrative volume (1884) and a geological memoir on Palestine (1886). His "Physical Geology and Geography of Ireland" (1878; 2nd ed. 1891) and "The Building and Ornamental Stones of Great Britain, etc.," are well-known treatises. A good portrait of Hull occurs in the "Reminiscences" above mentioned.

NOTES.

The late Mr. Cawthron left 250,000*l.* to the city of Nelson, New Zealand, for scientific research. The trustees are the Bishop of the diocese, the member for the district, the Mayor of Nelson, two chairmen of local bodies, and a personal friend of the deceased. The site of the proposed institute has been purchased, and the appointment of a director and staff is under consideration. The object of the institute is, primarily, scientific research work for the benefit of the province of Nelson and the Dominion of New Zealand. The province of Nelson is mostly concerned with fruit, agriculture, and minerals.

Under the title of "Science and Industry," the *Evening Standard* has recently published a series of five articles discussing the bearing of applied chemistry in its various branches on the welfare and safety of the nation. The national importance of chemical manufacture lies in the circumstance that so many undertakings included in this category are key industries, representing vulnerable points in the commercial armour of a nation. For instance, in a country deprived of its supply of sulphur, the manufacture of sulphuric acid would at once cease. This stoppage would react immediately on the production of alkalis, and these in turn would affect the output of soap and glycerine, which would not be obtainable. Without sulphuric acid, the manufacture of nitric acid from nitre could not be continued, and the production of explosives would be brought to a standstill. In this way whole sections of commercial activity would be completely dislocated, and the nation would be left practically defenceless. A similar line of reasoning shows that the manufacture of synthetic dyes is also a key industry. These chemical industries have all developed from researches often carried out, in the first instance, merely out of scientific curiosity. In fact, nearly all the more important and revolutionary advances in industrial chemistry have sprung from pure research, although utilitarian researches carried out on special lines have contributed minor improvements. The former type of research should be subsidised by the State, whereas the latter should be maintained by the manufacturers. Scientific men, who have shown undoubted aptitude for the all-important pure research, have often to pretend that their investigations have a quasi-industrial bent in order to justify their activities in the eyes of departmental donors. The writer of the articles in our contemporary asserts that in the difference between England and Germany as regards the development of science and industry "there is no question of superior intellect or greater technical skill or a more suitable national temperament," but he also blames the nation as a whole for the lack of progress in industry based on chemical science. Surely what is lacking in the nation is the inspiration of a lofty ideal. In actual practice honour and public esteem come to him who acquires most wealth, and the choice of a profession is regarded merely as a means to this end. As the German scientific industrialist, von Rathenau, has recently pointed out, this is not the sole end in view of the many hundreds of chemists and other investigators who discover and improve the scientific processes of manufacture which are the most valuable assets of the German chemical monopolies.

Dr. Otto Klotz has been appointed Chief Astronomer and Director of the Dominion Astronomical Observatory at Ottawa.

The death is announced, on October 27, of Mr. Worthington G. Smith, of Dunstable, fellow of the Linnean and other societies, at eighty-two years of age.

We notice with regret the announcement of the death on October 24, at fifty-four years of age, of Mr. George T. Holloway, vice-president of the Institution of Mining and Metallurgy, and widely known as a consultant metallurgist and assayer.

A course of twelve Swiney lectures on geology will be delivered by Dr. J. S. Flett at the Royal Society of Arts on Tuesdays, Thursdays, and Fridays, beginning on Tuesday, November 13. The subject will be "The Mineral Resources of the British Empire." No charge for admission will be made.

We notice with much regret the announcement that Baron Dairoku Kikuchi died suddenly at his villa at Chigasaki, Japan, on August 19. Baron Kikuchi was formerly professor of mathematics in the Imperial University at Tokyo, and afterwards its president. He was the author of many contributions to scientific journals and several books, including a notable volume on "Japanese Education," consisting of a series of lectures delivered at the University of London in 1907.

AT the meeting of the Optical Society to be held on November 8 at the Imperial College of Science and Technology, South Kensington, Lt.-Col. A. C. Williams will describe certain optical stores which have been captured from the enemy. Among the instruments to be shown will be a one-man range-finder, director for field artillery, director for heavy artillery, dial sights, clinometer, sight clinometer, gun-sights or sighting arcs, stereoscopic telescopes, periscopes, Galilean binocular, and sighting telescopes for machine-guns.

PROF. E. S. REYNOLDS will deliver the Bradshaw lecture of the Royal College of Physicians of London on Thursday, November 8. The subject will be "The Causes of Disease." On the same day the Bradshaw lecture of the Royal College of Surgeons of England will be given by Sir John Bland-Sutton, who will take as his subject "Misplaced and Missing Organs." The FitzPatrick lectures of the Royal College of Physicians of London will be delivered on November 13–15 by Dr. A. Chaplin. The subject chosen is "Medicine in England during the Reign of George III."

DR. T. BRAILSFORD ROBERTSON, professor of biochemistry and pharmacology in the University of California, has executed a deed giving to the University of California all his patent rights in the growth-controlling substance, "Tethelin," isolated by him from the anterior lobe of the pituitary body, and employed to accelerate repair in slowly healing wounds. All profits from this discovery are to constitute an endowment, the income to be applied to medical research. It is felt by the University of California that one especial value of the establishment of this foundation is the example which it sets for a procedure by which other investigators may dedicate the results of their scientific discoveries to the benefit of mankind as a whole.

WE regret to announce the death of Sir W. J. Herschel, Bart., grandson of the famous discoverer of Uranus, and son of the no less distinguished Sir John Herschel. In 1823 Purkinje, the eminent physiologist of Breslau, had directed attention to the subject of finger impressions. There has been some controversy on the part taken by Sir William Herschel in utilising this discovery for the practical purpose of the identification of criminals, but the history of the subject is given by him in "The Origin of Finger-Printing," published last year (see NATURE, vol. xcviii., pp. 268, 388). In 1859 Sir William directed the attention of the Indian Government to the importance of the question. His advice was neglected, and it was not until 1897, nearly twenty years after he had left India, that the matter was investigated by a committee of experts, and Mr. (now Sir Edward) Henry, then Inspector of Police in Bengal, was associated with the introduction of the system into that province. Under him, as Commissioner of the London Police, the invention has been fully and scientifically applied to the investigation of crime. It is remarkable that Herschel was overlooked in the distribution of Indian honours. On his retirement from India he settled at Oxford, where he took a useful part in local affairs.

A CONFERENCE of representatives of provincial museums was held in the Town Hall, Sheffield, on October 16 and 17. Alderman W. H. Brittain, chairman of the Library and Museums Committee, presided. The first day was devoted to papers and discussions on the relation of museums to all grades of schools and education generally, an account being given of the work done in that direction by various museums, with practical suggestions as to its extension and more direct co-ordination. Mr. H. A. L. Fisher, who was unable to be present, expressed his interest in the conference, and arranged for four of the chief divisional inspectors for the Board of Education to attend, representing art, technical, elementary, and secondary schools. The exchange of views which took place should help towards a more vital connection between the museums and the schools. The second day was devoted to war museums, the proceedings being opened with a letter from Sir Whitworth Wallis on the subject, his absence being due to indisposition. Mr. Herbert Bolton read a paper outlining the purposes of war museums, and Mr. R. F. Martin, of the Victoria and Albert Museum, followed with a practicable scheme for their establishment in country villages. A full report was taken of the proceedings, and a committee, with Mr. E. Howarth as editor, was appointed to arrange for its publication *in extenso*.

ONE of the consequences of the increasing shortage of shipping, caused not only by actual losses due to submarine attacks, but also by still expanding war requirements which monopolise more and more of the depleted fleets of merchant shipping, has been to stimulate the production of pig-iron in this country from ore won in its own mines. The product of the smelting of this ore is known as basic pig-iron, because it requires to be treated by the basic, as contrasted with the acid, process for its conversion to steel. The Ministry of Munitions has been charged by the Government with the duty of increasing the supply of this iron, and has called upon various firms to co-operate. On one hand increased supplies of ore have been mined. On the other existing furnaces have been adapted to the new requirements and new blast-furnaces have been built. One of these was "blown in" on October 20 at the Stanton Ironworks, near Ilkeston, Derbyshire, and Mr. G. H. Roberts, M.P., Minister of Labour, was present at the ceremony. Before the war the nine furnaces of this company were engaged in making foundry pig-iron. To-day two of these have been diverted from this purpose and are making basic pig for steel sheets. To these must be added the new furnace which has been erected by the company. In this way the necessity of importing ores from abroad is being reduced in a highly satisfactory manner.

ANOTHER, the eighth, set of public lectures during the war has been arranged by the Chadwick trustees. The course began on October 29 at the Hampstead Central Library, when Dr. Charles Porter lectured on the prevention of the common infectious ailments. The programme also includes the following forthcoming lectures:—During the current quarter, at Gretna, Prof. H. J. Spooner on fatigue and the worker—causes, effects, and reliefs, and Sir John Stirling Maxwell, Bart., on forestry as an after-the-war employment. During November, Dr. Woods Hutchinson will lecture at the Robert Barnes Hall, Royal Society of Medicine, Cavendish Square, W.1, on the part of hygiene in the European war. At Leicester, in November and December, Mr. H. T. Davidge will lecture on electricity and national welfare. In February next Prof. Spooner will discourse at Huddersfield on the powers of man as a worker. On October 26 Prof. D. Noel Paton lectured at Gretna on food in war-time. He pointed out that a man doing an average day's work requires about 3000 Calories supplied in his food. The food as purchased must contain about 15 per cent. more than this because there is loss in distribution and cooking and in the process of digestion. Women and children at different ages require proportionately less energy and therefore less food.

The requirements of all groups constituting the population may be calculated, and it is found that the minimum requirement of the nation is something like 43¾ million million energy units per year. To find how far the food supply in pre-war time was adequate to yield this, statistics have been collected and the energy yielded by the food has been determined, and has been found sufficient to yield 51 million million energy units—about 15 per cent. above the calculated minimum requirement. Of this food more than half was imported. Further particulars of Chadwick lectures may be obtained from the secretary, offices of the Chadwick Trust, 40 (6th) Queen Anne's Chambers, Westminster.

IN *Man* for October Dr. W. L. Hildburgh describes an interesting example of disease transference witnessed by him at Benares. When an attack of disease is attributed to the malevolence of the spirit of a woman who has died in childbirth, known as *churel*, a little palanquin, a doll, and some other articles are placed at night at a spot where four roads meet. Dr. Hildburgh regards this device as a kind of trap to outwit the evil spirit, the idea being that anyone treading on these articles will carry the dangerous influence away with him. The cross-roads are naturally selected as the place at which such dangerous influences may be most readily dispersed.

SIR JAMES FRAZER has published, as an instalment of his forthcoming work on the folklore of the Old Testament, a paper read before the British Academy (Proceedings, vol. viii.) entitled "Jacob and the Mandrakes," in which he discusses, with an abundant quotation of examples, the belief that this plant (*Mandragora officinarum*) is regarded as a potent agent in magic, particularly as a means of promoting fertility. "Such beliefs and practices illustrate the primitive tendency to personify Nature, to view it as an assemblage of living, sensitive, and passionate beings rather than a system of impersonal forces. That tendency has played a great part in the evolution of religion, and even when it has been checked or suppressed by the general mass of educated society, it lingers still among the representatives of an earlier mode of thought, the peasant on one hand and the poet on the other."

THE potato tuber moth (*Phthorimaea operculella*)—a well-nigh cosmopolitan pest—forms the subject of Bulletin 427 of the U.S. Dept. of Agric., written by Mr. J. E. Graf. A special feature of this paper is seen in the attention paid to parasitic Hymenoptera and other insect enemies of the caterpillars.

A NEW species of Lima from the English chalk is described by Mr. T. Sheppard in the *Naturalist* for October. Differing very markedly in shape from any other of the Cretaceous Limidæ, the author proposes to name his specimen *Lima* (*Plagiostoma*) *middletonensis*. It most nearly resembles *Lima hoperi*, which has a wide range in the south of England, and is found in the same quarry as that from which the new species was obtained. The distribution of *L. middletonensis* is given as the "base of the *Micrastur cor-anguinem* zone, Middleton-on-the-Wolds, East Riding of Yorkshire."

A PAPER by Mr. A. Busck in the *Journal of Agricultural Research* (vol. ix., No. 10) on the pink bollworm (*Pectinophora gossypiella*)—a well-known cotton pest with a very wide range—is noteworthy for the extreme care devoted to structural details of the insect in its various stages, which are illustrated by exceptionally good drawings. These minute details are not without economic importance, as the scavenging caterpillar of *Pyroderces rileyi*, often found in open cotton bolls, is, at times, mistaken for the true "bollworm." The imago, larva, and pupa of Pyroderces are also most carefully described and figured for purposes of comparison.

COLEOPTERISTS will be glad to know that a fine specimen of the rare Curculionid beetle, *Tapinotus sellatus*, has been found in the Norfolk fens, since it is just seventy-one years ago that the last specimen was taken. This capture, announced in the *Entomologist's Magazine* for October, was made by Mr. O. E. Jason, who, in June last, made a very thorough search for this insect in the neighbourhood of Horning. It is to be noted that it was not found in association with its reputed food-plant, *Lysimachia vulgaris*. Only two other specimens of this beetle have been taken in Great Britain, the first at Horning in 1836, the second at Whittlesea Mere in 1846.

UNDER the title "Some Museums of Old London" Mr. W. H. Mullens, in the *Museums Journal* for October, gives a most interesting account of William Bullock's Museum. This was removed in 1809 from Liverpool to London, where it was housed, first at No. 22 Piccadilly, and three years later at the Egyptian Hall, Piccadilly, which was pulled down a few years ago. Mr. Mullens, however, does not confine his survey entirely to the museum, but brings together some interesting details of Bullock himself, including an account of his chase of the last living specimen of the great auk, which was later killed and placed in his museum, and now rests in the British Museum. In a later contribution the author promises to give a detailed description of the museum itself, its contents, and the story of its dispersal.

CONSIDERABLE interest was aroused during the summer months by somewhat sensational newspaper accounts of a plague of caterpillars of the "antler" moth (*Charaeas graminis*) in the north of England. Two short articles in the *Entomologist's Monthly Magazine* for August (vol. liii., No. 639), by Mr. G. T. Porritt and Dr. A. D. Imms, contain trustworthy information on the subject. From the latter we learn that "in point of numbers and area affected the present year has probably exceeded all previous records, at any rate so far as the United Kingdom is concerned." The larvæ swarmed in hill pastures from Cumberland to Cheshire and Derbyshire, feeding, however, only on "bent grass" (*Nardus stricta*), and not attacking either good meadow grass or corn crops.

AN exceptionally interesting contribution to our knowledge of the insects of the Carboniferous period is made by Mr. Herbert Bolton in a paper (Mem. Manchester Lit. and Phil. Soc., vol. lxi., part 1) on the "Mark Stirrup" collection of fossil insects from the Coal Measures of Commentry—that famous locality in central France whence came the 1300 specimens described in Ch. Brongniart's classical "Recherches" (1894). Most of the species now brought to light by Mr. Bolton are blattoids. Of special importance are two specimens made types of new genera, one of which—Megagnatha—is referred to the Perlidæ (stone-flies), with which it agrees in nervuration, though it differs in the possession of elongate and formidable mandibles, while the other—Sycopteron—is regarded as an ally of the Panorpidæ (scorpion-flies). To have established the existence of such a comparatively specialised type among the Palæozoic fauna is a noteworthy achievement. The illustrations are admirably reproduced from enlarged photographs. Another paper on Palæozoic insects has been published by Mr. H. Bolton in the Quart. Journ. Geol. Soc. (vol. lxxii., 1916, part 1); this contribution deals with insects from the British Coal Measures. Several wings and wing fragments are described, most of them being referable to the well-known generalised group of the Palæodictyoptera.

The sixth volume of the "Icones Plantarum Formosanarum," by Bunzō Hayata, has recently been published, and, like its predecessors, is a valuable contribution to our knowledge of the flora of the island. There are 168 pages of text, containing studies of 212 species, belonging to a large number of natural families, 126 of which are new to science. One genus, Parasitipomæa, is described for the first time, and there are nine genera recorded which hitherto have been unknown in Formosa. The new genus, belonging to the Convolvulaceæ, is interesting in having flowers like those of Ipomæa, but the plant is a leafless parasite. A large number of new orchids, sedges, and grasses are among the plants described and figured. Throughout the text there are numerous excellent figures, and the volume is further enriched by twenty well-drawn plates.

The recently received report of the Ceylon Agricultural Department for 1916 gives indication of activity and sound work under the new director, Mr. F. A. Stockdale. A welcome sign of the new administration is the issue of practical leaflets, intended for the use of planters, on plant and insect pests and other agricultural matters. Three of these have recently been published. No. 3 deals with the beautiful fluted scale which attacks Acacia trees, and in California is a serious pest on Citrus. In Australia, whence the pest seems to have come, it is held in check by parasitic flies, etc. The leaflet is issued as a warning to prevent, if possible, the spread of the insect. The second leaflet is concerned with the black-rot disease of tea, a sterile fungus of the genus Hypochnus, which attacks the leaves, and may prove to be a serious menace to the tea industry of the island unless kept under control.

An account of observations made during the past three or four years on the cause of the common dry-rot of the potato tuber in the British Isles is communicated by Dr. G. H. Pethybridge and Mr. H. A. Lafferty to the Scientific Proceedings of the Royal Dublin Society (vol. xv. (N.S.), No. 21, June, 1917). In confirmation of previous work, it is established that the dry-rot of the potato tuber which commonly occurs in the British Isles is due to the attacks of a parasitic species of Fusarium, which is now definitely identified, however, as *F. coeruleum* (Lib.), Sacc., rather than *F. Solani*, Sacc., as was previously believed. *F. coeruleum* does not produce hadromycosis of the potato plant, nor does it kill the plant by attacking the roots. It can destroy tomato fruits, but does not attack onions, mangels, carrots, parsnips, or apples. Infection takes place through wounds, but can also be effected through the lenticels, eyes, or young sprouts of uninjured tubers. Some varieties of potatoes are more resistant to infection than others. Potatoes become more susceptible to infection as they become more mature, hence the rot is more prevalent during the later than during the earlier period of storage. No effective preventive measure or cure has yet been devised.

Some geological problems regarding the valley of the Isonzo form the subject of a paper by Prof. Torquato Taramelli in the *Rendiconti del R. Istituto Lombardo* (vol. xlix.). Our knowledge of the geological structure of this valley was first made known by D. Stur, of whose work Taramelli gives a brief abstract. About 1870, when on the staff of the Technical Institute at Udine, Taramelli published a paper on glacial action in the valleys of the Drava, the Sava, and the Isonzo, and this work was continued in 1874, in which year Lipold published a geological map of the Isonzo valley. At Idria are mines of cinnabar, discovered in 1490. More recently a new tunnel on the line to Tolmino has been the subject of a paper by Franz Kossma. The works of Brückner and Penck on this district are discussed in considerable detail, and the paper is illustrated by a map showing the course of the principal rivers and the peri-Adriatic fracture.

The "Report on the Building and Ornamental Stones of Canada," vol. iv. (Manitoba, Saskatchewan, and Alberta), issued by the Canadian Department of Mines, contains characteristic and excellent coloured plates showing the texture of the principal rocks described. The modes of testing are stated, among them being a corrosion test, in which cubes of stone are suspended for four weeks in a vessel containing water into which carbonic acid gas and oxygen pass. The loss or gain in weight is calculated to the square inch of exposed surface, and in no case is a gain in weight recorded. Arrangements are made for securing that the pressure in the liquid remains uniform, since this factor largely affects the solution of limestone. It is important to note colour-changes resulting from this test; thus bluish sedimentary rocks may become distinctly yellow. The porosity test is conducted by filling the pores with water under a pressure of 2000 lb. to the square inch, continued for twenty-four hours. The limestones vary in pore-space from 0·292 up to 12·72 per cent., while one of the granites, which shows considerable fracturing in the field, has a porosity as high as 0·606.

A report of the Liverpool Observatory at Bidston by the director, W. E. Plummer, published by the Mersey Docks and Harbour Board, gives detailed seismological and meteorological observations for the year 1916. In the course of the year 184 earthquakes were registered, and a table is given showing the time and amplitude of each. Tables are given of the total amount of sunshine and the maximum wind velocity recorded on a Dines anemometer for each day, and there are daily results of the barometer, temperature, rain amount and duration, velocity and pressure of wind, with the points of the compass from which the wind blew. The old units of measurement are still adhered to, although in the summary of results for the year the barometric measurements and the rainfall are given in inches and millimetres, and the air temperature in Fahrenheit and Centigrade. Thermometers are exposed in Stevenson's screens, both on the north and south sides of the observatory, and the comparison is said to show that the past records, made entirely on the south side, are too high, owing to radiation from the southern front. No failure occurred throughout the year in the firing of the gun as a time-signal for the shipping in the neighbourhood.

Symons's Meteorological Magazine for October shows the weather conditions for September to have varied considerably in different parts of the British Islands. The rainfall tables afford a fairly good representation, for so early a date, of the relative dryness of September in most parts of the country, although there was an excess of rain in places. In the English midlands the rainfall was mostly slight, and at Worksop, Nottinghamshire, the total measurement was only 31 per cent. of the average. At Borrowdale, Cumberland, the rainfall was 18·04 in., which is 6·76 in. more than the average. In parts of Cumberland and Westmorland the September rains are said to be as much as 20–25 in. in places. For England and Wales the rainfall for the month is given as 88 per cent. of the average, Scotland 95 per cent., and Ireland 77 per cent. The mean temperature was above the average in most parts of the United Kingdom, and there was generally a deficiency of sunshine. An examination of the details given in the issues for the last six months shows that for the whole summer from April to September inclusive the rainfall for England and Wales was 109 per cent. of the average, in Scotland 91 per cent., in Ireland 106 per cent., and for the British Islands as a whole 104 per cent. The wettest month was August over the entire kingdom, and the driest July in Great Britain, whilst September was the driest in Ireland. In London, according to the observations at Camden Square, the rainfall for the six months was 19·90 in., 144 per cent. of the average, and every month was wet except April.

THE September number of *Terrestrial Magnetism and Atmospheric Electricity* contains the preliminary report of the magnetic survey work of the *Carnegie* during her four months' voyage from San Francisco to Easter Island and Buenos Aires last winter. Throughout the whole region traversed the compass deviates to the east of north by amounts between 3° and 30°. The errors of the British Admiralty chart at points on the course—almost directly south—from San Francisco to Easter Island, rarely exceed half a degree, the deviations given in the chart being in excess in the northern and in defect in the southern portion. From Easter Island round Cape Horn to Buenos Aires the errors of the Admiralty chart are on the average greater, but for the region near Cape Horn itself the chart is practically correct. In general over this part of the ocean the deviations given are smaller than those found by the *Carnegie*.

IN view of the public interest in the Mesopotamian Report, an article in *Engineering* for October 19 calls for special notice. This article gives a complete account, with many illustrations from photographs, of the new hospital ships for the Mesopotamian Expedition. These ships have been designed by Sir J. H. Biles and Co., who have embodied in the plans the requirements which the experience and foresight of Brevet Lt.-Col. Marham Carter have shown to be essential. The vessels are 160 ft. in length and 30 ft. in breadth, and the draught is limited to 3 ft. 6 in. The hospital accommodation is arranged on three decks, covered by a sun deck. The flying deck, immediately beneath the sun deck, is used exclusively for convalescents, and the upper and main decks for more serious cases. The vessels are driven by oil engines, but a steam boiler is fitted and is available for heating purposes during the cold Mesopotamian winter. Ventilation and cooling arrangements of very complete character have been provided. A carbon dioxide refrigerating machine of capacity 5 cwt. of ice per day is fitted; also a soda-water machine capable of turning out three gross of soda-water, lemonade, or ginger beer per day. It is impossible in a brief note adequately to deal with the arrangements of the hospital wards, cots, operating-room, infectious cases ward, bathrooms, etc. Those interested should refer to the article in our contemporary. Lt.-Col. Carter is to be congratulated upon the completeness of the arrangements which have resulted from his courage and pertinacity.

AMONG forthcoming books of science we notice the following:—"Telegraph Practice," J. Lee; "A Textbook of Laying Off, or the Geometry of Shipbuilding," E. L. Attwood and J. C. G. Cooper (*Longmans and Co.*); "The Resistance of Air," Col. R. de Villamil; "Aluminium: Production and Use," J. T. Pattison (*E. and F. N. Spon, Ltd.*); "The Nature of Solution," Prof. H. C. Jones, with a sketch of the author's career by Prof. E. Emmet-Reid (*Constable and Co., Ltd.*); "Ship Stability and Trim," P. A. Hillhouse (*The Grieves Publishing Co.*); "Strength of Ships," J. B. Thomas (*Scott, Greenwood and Co.*).

THE Cambridge University Press has in preparation for appearance in the "Cambridge Farm Institute" Series:—"Plant Life in Farm and Garden," Prof. R. H. Biffen, and "The Feeding of Farm Animals," Prof. T. B. Wood.

OUR ASTRONOMICAL COLUMN.

THE PLANETS IN NOVEMBER.—During the present month Venus will be a conspicuous object low down in the south-western sky for a short time after sunset, Jupiter may be observed practically throughout the night, while Mars and Saturn come into view during later hours. Particulars as to their rising, southing, and setting, together with their stellar magnitudes, at the beginning and end of the month, are given in the following table:—

		Rises	Souths	Sets	Stellar mag.
Venus	Nov. 1,		2.51 P.M.	6 24 P.M.	−3·8
	,, 30,		3·15 ,,	7· 4 ,,	−4·0
Mars	Nov. 1,	0.15 A.M.	7.28 A.M.		+1·4
	,, 30,	11.45 P.M.	6.31 ,,		+1·1
Jupiter	Nov. 1,	5·56 P.M.	1.55 A.M.	9.54 A.M.	−2·3
	,, 30,	3·46 ,,	11.41 P.M.	7·36 ,,	−2·4
Saturn	Nov. 1,	10.51 P.M.	6.27 A.M.		
	,, 30,	9· 0 ,,	4·35 ,,		

Venus will be at greatest easterly elongation of 47° on November 30, when half the disc will be illuminated. Mars is near α Leonis (Regulus) on November 1, and afterwards moves eastwards towards Virgo.

Jupiter will be in opposition on November 29; on the 1st the planet will be 4½° north of Aldebaran, and will have a retrograde motion of nearly 4° during the month.

Saturn is in the eastern part of Cancer, and will be at a stationary point on November 26.

NEW ZEALAND STANDARD TIME.—The present arrangement whereby the standard civil time in New Zealand differs from Greenwich Mean Time by 11h. 30m. was adopted on the suggestion of Sir James Hector in 1868, before the general system of zone time was introduced. The council of the Wellington Philosophical Society has recently taken the matter into consideration, and has resolved to urge upon the Government the desirability of making New Zealand time exactly twelve hours in advance of Greenwich. New Zealand is so happily situated that it would be possible by this simple alteration to secure the advantages of a time system moderately in advance of solar time, and to bring the time into conformity with the international arrangement. As there is no extreme variation in the length of the day at different seasons it is proposed to put the clock forward by half an hour, once for all.

NEW STARS IN SPIRAL NEBULÆ.—Two new stars have been found in the spiral nebula N.G.C. 4321 by Dr. H. D. Curtis, of the Lick Observatory (Journ. R.A.S., Canada, vol. xi., p. 311). The first appeared at some time prior to March 17, 1901, and was then of about magnitude 13·5; it was a magnitude fainter in April, and has now completely disappeared. It was 110″ west, and 4″ north, of the nucleus. The second nova appeared at some time before March 2, 1914, and was then about magnitude 14; it was 24″ east, and 111″ south, of the nucleus. The position of the nebula for 1900 is R.A. 12h. 17·9m., declination +16° 23′.

Mr. Adams reports that Ritchey's nova in N.G.C. 6946 was rapidly growing fainter at the end of July; the colour-index shows that the star cannot be a long-period variable.